(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 29 September 2005 (29.09.2005)

(10) International Publication Number WO 2005/089389 A3

- (51) International Patent Classification: *F16,I 3/00* (2006.01) *F04B 45/00* (2006.01)
- (21) International Application Number:

PCT/US2005/008777

- (22) International Filing Date: 16 March 2005 (16.03.2005)
- (25) Filing Language:

English English

(26) Publication Language:

C

(**30**) **Priority Data:** 60/553,692

16 March 2004 (16.03.2004) US

- (71) Applicant (for all designated States except US): HAR-GRAVES TECHNOLOGY CORPORATION [US/US]; 127 Speedway Drive, Mooresville, NC 28117 (US).
- (71) Applicant and
- (72) Inventor: CURTIS, Douglas, Allan [US/US]; 143 Denlon Lane, Troutman, NC 28166 (US).
- (74) Agents: ADAMS, Thad, W. et al.; Adams Evans, P.A., 2180 Two Wachovia Center, 301 South Tryon Street, Charlotte, NC 28282 (US).

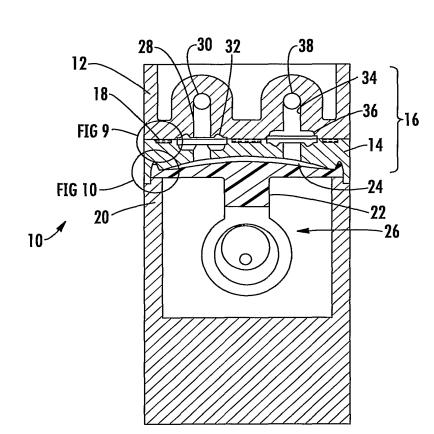
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

[Continued on next page]

(54) Title: PUMP SEALING APPARATUS



(57) Abstract: A sealing arrangement for a pump includes a first member having a peripheral wedge-shaped pocket; a second member with a rim opposed to the pocket; and a diaphragm disposed between the two members. The diaphragm includes a central stem, a disk-shaped head attached to the stem, and an upstanding bead disposed around the periphery of the head. The bead includes a first angled surface and a second angled surface. The bead is received in the pocket so as to form two separate, spaced-apart sealing surfaces between the diaphragm and the first member. The sealing arrangement may also include a gasket made from a resilient material and having a flat web with a circular crosssection bead disposed in a gland between two members. The dimensions of the bead and the gland are selected such that the bead is diametrically compressed at least about 40% from its free state.

WO 2005/089389 A3



- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 10 August 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.